

# Power for the Giants

## *Preliminary Description of the Bristol Proteus Turboprop Unit : Brabazon and S.R.45 Coupled Installations in Detail*

**M**ATCHING in magnitude the structural and aerodynamic problems which attend the Bristol Brabazon I Mark II, landplane and Saunders-Roe S.R.45 flying boat is the task of providing power units for these civil colossi. This can well be appreciated when it is considered that the respective all-up weights will be 130 tons and 135 tons, and that a very high speed and long range is demanded in both instances. Official restrictions have hitherto precluded any detailed appreciation of power plant features, but the release of preliminary information on the Bristol Proteus turboprop now permits description and illustration of how power is being provided by the Engine Division of the Bristol Aeroplane Co., Ltd., and of the manner in which this will be utilized by the airframe designers. Both the Proteus itself and the coupled installation will, we believe, be judged worthy of the Brabazon and S.R.45 designs.

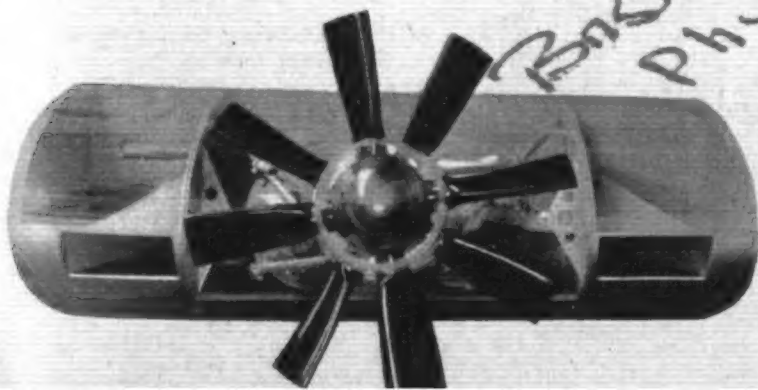
Though in the first instance the Brabazon I is to be air-tested with an installation of coupled Bristol Centaurus reciprocating engines (see *Flight*, December 26th, 1946), subsequent machines will each receive four coupled pairs of

Proteus. The S.R.45 will be powered from the outset with ten Proteus units—four in coupled pairs and two individual units outboard. Before surveying the coupled installation, common to both aircraft, all available information on the Proteus itself will be presented, together with some account of development to date.

The Proteus—a unit of roughly 3,500 h.p.—was started up for the first time on January 25th, 1947. Valuable data had already been gained from the testing of the smaller Theseus unit of about 2,300 h.p., which first ran on July 18th, 1945, and which, by December of the following year, had successfully completed the Ministry of Supply 100-hour type test. In Lincoln aircraft the Theseus has since amassed over 600 flying hours and, as lately described in *Flight*, has completed an arduous 500-hour endurance test, during which all major items were sealed.

Though certain design techniques are expressed both in the Theseus and Proteus, the latter unit differs considerably in layout. The compressor is a combined axial and centrifugal unit, centrally located and having the combustion chambers disposed around it. Photographs and drawings

Model of the coupled Proteus installation for the Brabazon.



### A MATTER OF NOMENCLATURE

**T**O all but students of Greek mythology the name Proteus will be unfamiliar and its suitability to the new Bristol turboprop unit not, perhaps, apparent. The adjective "protean," meaning variable, certainly does not help to elucidate the matter.

Editorial research discloses that the divinity concerned may have personified the changeable aspect of the sea, and that he held the secret of contrary winds. This knowledge lends a special interest to the terms of the Brabazon and S.R.45 specifications which demand exceptionally long ranges in face of perverse winds.